REMARKS

Reconsideration of the subject application is respectfully requested in view of the above-noted amendments and the following remarks. With the above amendments, claim 11 has been amended and new claims 12 and 13 have been added. No new matter has been added. Support for terminology related to immunological reactivity in the claims can be found for example at page 42, lines 8-10. Support for 20 contiguous amino acids can be found throughout the specification as filed, for example at page 41, line 24 - page 42, line 2. Support for immunostimulants can be found for example at page 98, line 14 - page 101, line 20. It should also be noted that the above amendments are not to be construed as acquiescence with regard to the Examiner's rejections and are made without prejudice to prosecution of any subject matter removed or modified by this amendment in a related divisional, continuation or continuation-in-part application.

Rejections under 35 U.S.C. §§ 101 and 112, first paragraph (Utility/Enablement)

Claim 11 stands rejected under 35 U.S.C. § 101 as allegedly lacking patentable utility. The claim also stands rejected under 35 U.S.C. § 112, first paragraph. The Action asserts that the invention is allegedly not supported by either a credible, specific, or substantial utility or a well-established utility. Specifically, the Action alleges that Applicants have not provided evidence that the claimed polypeptide comprising SEQ ID NO:475 actually functions as a breast tumor antigen, and that there is no indication that this polypeptide is differentially expressed in breast tumor tissue. The Action contends that there is no direct evidence demonstrating a correlation between the over-expression of the nucleic acid encoding the polypeptides of the present invention in breast tumor tissue, and the level of polypeptide present in the diseased breast tissue. The Action further asserts that it is unclear how administering a composition comprising the polypeptide of SEQ ID NO:475 would be effective to alleviate a condition that itself is associated with the over-expression of said polypeptide. Finally, the Action asserts that, due to a lack of utility, one skilled in the art would not know how to use the claimed invention. Applicants wish to thank the Examiner for noting that the rejection may be overcome by filing a copy of the affidavit filed during prosecution of parent application number 09/604,287.

Applicants respectfully traverse this rejection on the following grounds. Applicants submit that the specification shows that the B726P gene is over-expressed in breast tumor and expressed at low levels in all normal tissues tested (breast, brain, liver, pancreas, lung, salivary gland, stomach, colon, kidney, bone marrow, skeletal muscle, PBMC, heart, small intestine, adrenal gland, spinal cord, large intestine and skin) (see for example, page 124, lines 17 – 21; B726P partial sequence is set forth in SEQ ID NO:71). The specification further shows that the polynucleotide sequence provided in SEQ ID NO:474 comprises a splice variant of the B726P gene that brings together into a single ORF both the downstream and upstream ORFS of B726P (see for example page 123, line 25 – page 124, line 24). The amino acid sequence encoded by SEQ ID NO:474, the combined ORF of B726P, is provided in SEQ ID NO:475. Applicants note that those of skill in the art recognize that expression of mRNA is a first and necessary step in the expression of a polypeptide and that there is a reasonable expectation of correlation between mRNA expression and protein expression. Therefore, there is a reasonable expectation that the expression of mRNA encoding SEQ ID NO:475, would correlate with the expression of a protein as set forth in SEQ ID NO:475. Furthermore, Applicants submit that the Action has not cited any evidence supporting the assertion that SEQ ID NO:474 is not translated into the protein set forth in SEQ ID NO:475. Moreover, as confirmed in the enclosed copy of the original signed Declaration of Dr. Gary Fanger, filed during prosecution of parent application No. 09/604,287, the combined ORF of B726P (SEQ ID NO:475) is an actual protein and is over-expressed in breast cancer cell lines compared to normal tissue, as shown by immunoprecipitation and Western blot analysis. Thus, Applicants submit that the skilled artisan would readily recognize any number of utilities for the claimed polypeptides comprising SEQ ID NO:475 and fragments thereof comprising at least 20 contiguous amino acids of the polypeptide set forth in SEQ ID NO:475. For example, it is submitted that one of skill in the art, on being provided with the instant specification, would appreciate that the Applicants' polypeptides, as well as the polynucleotides encoding those polypeptides, would be useful in any of a variety of diagnostic scenarios. Polypeptides comprising SEQ ID NO:475, for example, can be used to elicit an immune response, *e.g.*, an antibody response, and such antibodies can be used in the detection of breast tumors by way of immunohistochemical analysis, cell capture techniques, and

the like, based upon the differential over-expression of the polynucleotide encoding the polypeptide set forth in SEQ ID NO:475 in breast tumor tissue relative to normal tissue.

With respect to the Action's assertion that it is unclear how administering a composition comprising the polypeptide of SEQ ID NO:475 would be effective to alleviate a condition that itself is associated with the over-expression of said polypeptide, Applicants respectfully submit that a skilled artisan would appreciate, particularly in light of the guidance provided in the instant specification, for example on page 110, line 15- page 113, line 8, that the claimed polypeptides could be used to generate a specific immune response against said polypeptide that is over-expressed on breast tumor tissues as compared to normal tissues. It is well accepted that the body's immune system normally keeps many cancers in check and that stimulation or re-stimulation of immune cells specific for antigens associated with cancer would be expected to lead to a therapeutic benefit. Thus, the specific immune response would preferentially target tissues that over-express the polypeptide (*i.e.*, tumor tissue). In this manner, the specific immune response generated would be effective in alleviating a cancer associated with the over-expression of the polypeptide of SEQ ID NO:475. Applicants further urge that fragments of the polypeptide set forth in SEQ ID NO:475, such as polypeptides comprising at least 20 contiguous amino acids of the polypepetide of SEQ ID NO:475 as recited in newly added claims 12 and 13, would be equally useful in this regard. This would be readily recognized by the skilled artisan, particularly in view of the instant specification, for example at Example 4 beginning on page 133, Example 5 beginning on page 135, and Example 17 beginning on page 152.

It is urged that the invention is supported by both a credible, specific, and substantial utility as well as a well established utility and one of skill in the art, on being provided with the instant specification, would be able to make and use the presently claimed methods and compositions. Therefore, the rejection of the claims under 35 U.S.C. §§ 101 and 112, first paragraph, may be properly withdrawn.

Rejections under 35 U.S.C. § 112, first paragraph (Written Description)

Claim 11 is rejected under 35 § U.S.C. 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the invention was filed, had possession of the claimed invention. In particular, the Action contends that the specification and claims do not indicate what distinguishing attributes are shared by the members of the genus of isolated polypeptides having at 90% identity to SEQ ID NO:475. The Action further asserts that the genus is highly variant and that the specification nor the claims provide any guidance as to what specific changes should be made.

Applicants respectfully traverse this ground for rejection and submit that the specification more than adequately describes distinguishing identifying characteristics sufficient to show that Applicants were in possession of the genus of polypeptides claimed. Applicants traverse this rejection and submit that a sufficient and relevant identifying characteristic shared by members of the currently claimed genus is their % identity to the polypeptide set forth in SEQ ID NO:475. Claim 11 specifically recites this structural identifying characteristic of the claimed polypeptides. Further, claim 11 as amended recites the functional characteristic "wherein said polypeptides having 90% identity are immunologically reactive with an antibody and/or T cell that reacts with the polypeptide set forth in SEQ ID NO:475."

To accept the Examiner's position that Applicant was only in possession of the specific species of SEQ ID NO:475 would inappropriately exclude an entire class of polypeptides related to SEQ ID NO:475 that the skilled individual would appreciate were in Applicant's possession at the time of filing. For example, given the Applicant's disclosure of the novel B726P polypeptide of SEQ ID NO:475, in conjunction with the Applicant's discovery that this polypeptide is expressed in breast tumor tissue relative to normal breast tissue, it is submitted that the skilled artisan would immediately recognize that the Applicant was in possession of much more than the specific sequence of SEQ ID NO:475. Rather, in view of this disclosure, and further in view of the level of general knowledge in this art, the skilled artisan would understand and expect that an entire class of polypeptides structurally related to SEQ ID NO:475, *e.g.*, sequences having at least 90% identity to SEQ ID NO:475, would also be useful in

the context of the Applicant's invention, despite the fact that they are not identical with the specific sequence of SEQ ID NO:475. The skilled artisan would indeed fully expect that such sequences related to SEQ ID NO:475 could be used, for example, in inducing an immune response that would cross react with the polypeptide set forth in SEQ ID NO:475, despite the fact that the sequences are not identical with the specific sequence of SEQ ID NO:475. This understanding and expectation on the part of the skilled artisan is submitted to be soundly based upon fundamental scientific principles.

Applicants submit that one skilled in the art would recognize, particularly in light of the instant disclosure, for example at page 42, lines 3 – 7, and at Example 4 beginning on page 133, Example 5 beginning on page 135, and Example 17 beginning on page 152, an identifying characteristic shared by members of the claimed genus and that Applicants were in possession of this claimed genus at the time the application was filed. Accordingly, Applicants urge that the claims satisfy the written description requirement under 35 U.S.C. § 112, first paragraph, and respectfully request reconsideration and withdrawal of the rejection.

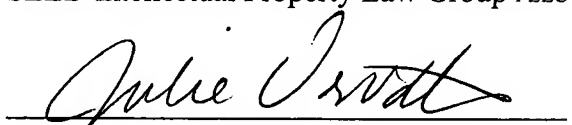
The Commissioner is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Applicants respectfully submit that the remaining claims in the application are now allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

Raymond L. Houghton et al.

SEED Intellectual Property Law Group PLLC



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Enclosure:
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Copy of Original Declaration of Dr. Gary Fanger as filed in Application No. 09/604,287.

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PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	Yuqiu Jiang et al.
Group Art Unit:	1635
Application No:	09/604,287
Filed:	June 22, 2000
For:	COMPOSITIONS FOR THE TREATMENT AND DIAGNOSIS OF BREAST CANCER AND METHODS FOR THEIR USE
Examiner:	Janet L. Epps, Ph.D.
Docket No.:	210121.470C7

DECLARATION OF DR. GARY FANGER

Commissioner for Patents
Washington, D.C. 20231

The undersigned, Dr. Gary Fanger, hereby declares:

1. I am an Associate Scientist at Corixa Corporation, the assignee of the subject application. The following experiments were carried out under my direct supervision.

2. ANALYSIS OF B726P EXPRESSION USING IMMUNOPRECIPITATION AND WESTERN BLOT ANALYSIS

As described in the specification, the polynucleotide sequence provided in SEQ ID NO:474 comprises a splice variant of the B726P gene that brings together into a single ORF both the downstream and upstream ORFS of B726P (see for example page 122, lines 25 – 29). The amino acid sequence encoded by SEQ ID NO:474, the

combined ORF of B726P, is provided in SEQ ID NO:475 Affinity purified polyclonal antibodies generated against the B726P downstream ORF protein set forth in SEQ ID NO:176 (anti-B726Pdown; see page 131, line 12 – page 133, line 10 of the specification) were used to assess the protein expression of the combined ORF of B726P in breast cancer cell lines as compared to normal cells as described below. Since the combined ORF inlcudes both the upstream and downstream ORFs, the antibodies generated against the downstream ORF crossreact with the combined ORF polypeptide as set forth in SEQ ID NO:475.

Cells were lysed in 1% Triton lysis buffer on ice for 10 minutes. Lysates were centrifuge at 15000 rpm and supernatant was saved for immunoprecipitation (IP)/Western analysis. 2 μg of anti-B726down polyclonal antibody was added to the supernatant and rocked overnight at 4°C. 20 μl of protein G bead slurry was added and incubated for 1 hour. Beads were then washed 3 times with 1 ml of lysis buffer. LDS sample buffer and β-mercaptoethanol were added and the samples were heated for 5 min at 95°C. Samples were size fractionated by gel electrophoresis, transferred to nitrocellulose and Western blotted with the mouse anti-B726down monoclonal antibody A2.1.

^{35}S methionine labeling/IP analysis was carried out as follows: Cells were grown in 10% Fetal Bovine Serum (FBS) media to desired density. Cells were then starved with DMEM lacking methionine containing 0.1% FBS media for 10 – 15 minutes. FBS was added to a final concentration of 10% along with ^{35}S-Methionine translabel (300 μCi – 1 mCi). After incubating for 3 –4 hours the cells were harvested, washed, and lysed. B726P was immunoprecipitated as described above and samples were size fractionated by gel electrophoresis before being exposed to autoradiography film.

The results from the above described experiments show that the full length 148 kDa form (also called NYBR1), the 110 kDa combined ORF form, and the 35 kDa downstream ORF form are all expressed in breast tumor cell lines HTB21 and BT474 but not in the SKBR3 normal breast cell line. Therefore, these results confirm that the combined ORF is an expressed protein that is found in breast tumor cell lines and not in

normal cells.

3. The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful, false statements, and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Gary Fanger, Ph.D.

4/15/02
Date

6/9/03 1635

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Approved for use through 10/31/2002. OMB 0651-0031

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(To be used for all correspondence after initial filing)

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First Named Inventor	Raymond L. Houghton
Group Art Unit	1635
Examiner Name	Janet L. Epps-Ford, Ph.D.
Attorney Docket No.	210121.470C11

ENCLOSURES (*check all that apply*)

- [ ] Fee Transmittal Form
  - [ ] Fee Attached
- [X] Amendment/Response
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement; Form PTO-1449
- [ ] Cited References
- [ ] Certified Copy of Priority Document(s)
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- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation, Change of Correspondence Address
- [ ] Declaration
- [ ] Statement under 37 CFR 3.73(b)
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD(s), Number of CD(s) _____
- [ ] After Allowance Communication to Group
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)*
- [ ] Proprietary Information
- [ ] Status Letter
- [X] Return Receipt Postcard
- [X] Additional Enclosure(s) *(please identify below)*:

Copy of original Declaration of Dr. Gary Fanger filed in Application 09/604,287

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Individual Name	Julie A. Urvater, Ph.D., Patent Agent Reg. No. 50,461	00500 PATENT TRADEMARK OFFICE
Signature	Julie Urvater	
Date	June 5, 2003	

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date specified below.

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